

# Notice of Allowability

Application No.

10/719,670

Examiner

Tho v Duong

Applicant(s)

PARK ET AL.

Art Unit

3743

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 9/7/2004.
2. ☒ The allowed claim(s) is/are 1-20.
3. ☒ The drawings filed on 20 November 2003 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All b) ☐ Some\* c) ☐ None of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.


Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

## Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date 11/20/2003
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

  
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### **DETAILED ACTION**

Receipt of the English translation of the foreign priority document filed 10/19/2004 is acknowledged.

#### ***Election/Restrictions***

Claims 3-6 and 15-16 have been withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 9/7/2004.

#### ***Allowable Subject Matter***

Since the generic independent claims 1 and 13 are allowed, the previous election requirement has been withdrawn. Claims 1-20 are now allowed.

The following is an examiner's statement of reasons for allowance: the prior art of record either in singular or in combination fail to disclose a stacked chip package comprising a board including at least one board pad and at least one dummy board pad; a plurality of chips, each having at least one bonding pad, the plurality of chips being stacked one atop the other on the board; and at least one heat transfer wire disposed between the chips, wherein at least one end of each of heat transfer wire is connected to at least one dummy board pad, and at least one bonding pad is electrically connected to at least one of the board pad. References to Hoffman et al. (US 6,737,750) and Chen et al. (US 6,716,676) are the closest prior arts. However, these references do not disclose a heat transfer wire disposed between the chips and connected to a dummy board pad located on the same board with the board pad. The thermal conductive means, which are

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disposed between the chips as shown by the prior art of records, are thermal conductive tape, adhesive or a support plate structure.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### *Conclusion*

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hoffman et al. (US 6,737,750) discloses a structures for improving heat dissipation in stacked semiconductor package.

Johnson (US 4,763,188) discloses a packaging system for multiple semiconductor devices.

Den (US 6,720,662) discloses a semiconductor device having stacked of chips with plates disposed between.

Papageorge et al. (US 5,438,224) discloses an integrated circuit package having a face to face IC chip arrangement.

Chen et al. (6,716,676) discloses a thermally-enhanced stacked chips.

Tuckerman et al. (US 5,804,004) discloses a stacked device for multichip modules.

Schneider et al. (US 5,610,442) discloses semiconductor device package having a heat transfer means disposed on top of the chip.

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Yang (US 6,291,881) discloses a dual silicon chip package.

Hsuan et al. (US 6,236,109) discloses a stacked chip having a heat sink on top of the chip.

Ball (US 6,784,023) discloses a stacked chip having a heat sink disposed there between.

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Tho Duong whose telephone number is (703) 305-0768. The examiner can normally be reached on from 9:30-6 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Henry Bennet, can be reached on (703) 308-0101. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0861.



TD

October 28, 2004



Tho Duong

Patent Examiner.